

Appl. No. 10/080,202
Amendment and/or Response
Reply to Office action of 10 September 2004

Page 2 of 13

Amendments to the Claims:

A listing of the entire set of pending claims (including amendments to the claims, if any) is submitted herewith per 37 CFR 1.121. This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) A method for adjusting the centering of a raster in a rear projection television receiver, ~~said method comprising the steps:~~

~~_____ mounting optical sensors on the inside of the rear projection television receiver outside of a display screen at both lateral sides of the display screen;~~

displaying a test pattern consisting of a raster center adjust pattern;

~~_____ receiving an output signal from each of at least two optical sensors located on opposing sides of a display screen;~~

~~_____ combining the output signals to form an adjustment measure; and~~

adjusting the centering of the raster based on the adjustment measure ~~the outputs of the optical sensors located on the lateral sides of the display screen.~~

2. (Currently amended) The method for adjusting the centering as claimed in claim 1, wherein ~~said adjusting the centering of the raster based on the adjustment measure~~ step comprises:

setting a centering control ~~at a one to an~~ extreme value;

measuring the output ~~signals/voltages generated by the lateral optical sensors;~~

calculating the ~~centering error adjustment measure~~ by determining ~~the an~~ absolute value of ~~the a~~ difference between the output ~~signals/voltages;~~

incrementally adjusting the centering control away from ~~said one the~~ extreme value; and

repeating ~~said the~~ measuring, calculating and incrementally adjusting steps until the centering error is below a given ~~at a minimum~~ value.

Appl. No. 10/080,202
Amendment and/or Response
Reply to Office action of 10 September 2004

Page 3 of 13

3. (Currently amended) A method for adjusting a width of a raster in a rear projection television receiver, ~~said method comprising the steps:~~

~~mounting optical sensors on the inside of the rear projection television receiver~~
~~outside of a display screen at both lateral sides of the display screen;~~

displaying a test pattern consisting of a raster projection pattern;

receiving an output signal from each of at least two optical sensors located on
opposing sides of a display screen;

combining the output signals to form an adjustment measure; and

adjusting the width of the raster based on the adjustment measure outputs of
~~the optical sensors located on the lateral sides of the display screen.~~

4. (Currently amended) The method for adjusting a width as claimed in claim 3,
wherein ~~said adjusting the width of the raster based on the adjustment measure step~~
comprises:

setting a width control for the raster to a maximum value;

measuring the output signals~~voltages~~ generated by the lateral optical sensors;

calculating the adjustment measure ~~width error~~ by determining ~~the a~~ sum of
the output ~~voltages~~signals;

~~incrementally~~ decreasing the width control; and

repeating ~~said the~~ measuring, calculating and ~~incrementally~~ decreasing steps
until the ~~width error equals a minimum~~ adjustment measure is below a given value.

Appl. No. 10/080,202
Amendment and/or Response
Reply to Office action of 10 September 2004

Page 4 of 13

5. (Currently amended) A method for adjusting a linearity of a raster in a rear projection television receiver, ~~said method comprising the steps:~~
~~mounting optical sensors on the inside of the rear projection television receiver~~
~~outside of a display screen at the top and bottom of the display screen;~~
displaying a test pattern consisting of a raster projection pattern;
receiving an output signal from each of at least two optical sensors located on
opposing lateral sides of a display screen;
combining the output signals to form an adjustment measure; and
adjusting the linearity of the raster based on the adjustment measure~~outputs of~~
~~the optical sensors located at the top and bottom of the display screen.~~

6. The method for adjusting a linearity as claimed in claim 5, wherein said
adjusting the linearity of the raster based on the adjustment measure ~~step~~ comprises:
setting a linearity control to ~~one~~ an extreme value;
measuring the output signals~~voltages generated by the top and bottom optical~~
~~sensors;~~
calculating the ~~linearity error~~ adjustment measure by determining ~~the~~ an
absolute value of ~~the~~ difference of the output voltages;
incrementally adjusting the linearity control away from ~~said one~~ the extreme
value; and
repeating said measuring, calculating and ~~incrementally~~ adjusting ~~steps until~~
the linearity error ~~equals a minimum~~ is below a given value.

Appl. No. 10/080,202
Amendment and/or Response
Reply to Office action of 10 September 2004

Page 5 of 13

7. (Currently amended) A method for adjusting a height of a raster in a rear projection television receiver, said method comprising the steps:

~~mounting optical sensors on the inside of the rear projection television receiver outside of a display screen at the top and bottom of the display screen;~~

displaying a test pattern consisting of a raster projection pattern;

receiving an output signal from each of at least two optical sensors located on vertically opposing sides of a display screen;

combining the output signals to form an adjustment measure; and

adjusting the height of the raster based on the adjustment measure ~~outputs of the optical sensors located at the top and bottom of the display screen.~~

8. (Currently amended) The method for adjusting a height as claimed in claim 7, wherein the adjusting the height of the raster based on the adjustment measure step comprises:

setting a height control for the raster to a maximum value;

measuring the output signals ~~voltages generated by the top and bottom optical sensors;~~

calculating the ~~height error~~ adjustment measure by determining the a sum of the output signals ~~voltages;~~

~~incrementally decreasing the height control;~~ and

repeating said the measuring, calculating and ~~incrementally decreasing steps~~ until the height error ~~equals a minimum~~ is less than a given value.

Appl. No. 10/080,202
Amendment and/or Response
Reply to Office action of 10 September 2004

Page 6 of 13

9. (Original) A method for adjusting a raster geometry in a rear projection television receiver, said method comprising the steps:

mounting optical sensors on the inside of the rear projection television receiver outside of a display screen at both lateral sides and above and below the display screen;

setting the height and width controls for the raster to respective maximum values;

displaying a first test pattern consisting of a raster projection pattern;

measuring and storing the maximum output from said optical sensors;

displaying a second test pattern consisting of a center adjust pattern;

adjusting the centering of the raster based on the outputs of the optical sensors located on the lateral sides of the display screen;

displaying the first test pattern;

adjusting the width of the raster based on the outputs of the optical sensors located on the lateral sides of the display screen;

adjusting the height of the raster based on the outputs of the optical sensors located above and below the display screen;

adjusting the linearity of the raster based on the outputs of the optical sensors located above and below the display screen; and

re-adjusting the height of the raster based on the outputs of the optical sensors located above and below the display screen.

Appl. No. 10/080,202
Amendment and/or Response
Reply to Office action of 10 September 2004

Page 7 of 13

10. (Original) The method for adjusting the raster geometry as claimed in claim 9, wherein said step of adjusting the centering comprises:

- setting a centering control at a one extreme value;
- measuring the output voltages generated by the lateral optical sensors;
- calculating the centering error by determining the absolute value of the difference between the output voltages;
- incrementally adjusting the centering control away from said one extreme value; and
- repeating said measuring, calculating and incrementally adjusting steps until the centering error is at a minimum value.

11. (Original) The method for adjusting the raster geometry as claimed in claim 10, wherein said step of adjusting the width comprises:

- setting a width control for the raster to a maximum value;
- measuring the output voltages generated by the lateral optical sensors;
- calculating the width error by determining the sum of the output voltages;
- incrementally decreasing the width control; and
- repeating said measuring, calculating and incrementally decreasing steps until the width error equals a minimum value.

12. (Original) The method for adjusting the raster geometry as claimed in claim 11, wherein said step of adjusting the height comprises:

- setting a height control for the raster to a maximum value;
- measuring the output voltages generated by the top and bottom optical sensors;
- calculating the height error by determining the sum of the output voltages;
- incrementally decreasing the height control; and
- repeating said measuring, calculating and incrementally decreasing steps until the height error equals a minimum value.

Appl. No. 10/080,202
Amendment and/or Response
Reply to Office action of 10 September 2004

Page 8 of 13

13. (Original) The method for adjusting the raster geometry as claimed in claim 12, wherein said step of adjusting the linearity comprises:

setting a linearity control to one extreme value;

measuring the output voltages generated by the top and bottom optical sensors;

calculating the linearity error by determining the absolute value of the difference of the output voltages;

incrementally adjusting the linearity control away from said one extreme value; and

repeating said measuring, calculating and incrementally adjusting steps until the linearity error equals a minimum value.

14. (Original) An arrangement for adjusting a raster geometry in a rear projection television receiver, said rear projection television receiver having an input for receiving television signals, a video processing circuit for processing said received television signals and for forming color video signals and deflection control signals, color video signal projectors for projecting light signals corresponding to said color video signals in dependence on said deflection signals, and a display screen on which said light signals are projected, wherein said video signal processing circuit includes control input means for receiving control signals for controlling a centering, height, width and linearity of a raster formed by at least one of said color video signal projectors, characterized in that said arrangement comprises:

a pattern generator coupled to the video signal processing circuit for applying selected test patterns to said video signal processing circuit, said test patterns including a center adjust pattern and a raster projection pattern;

a plurality of optical sensors mounted inside of the rear projection television receiver outside of the display screen at both lateral sides and above and below the display screen;

a sensor output selector for selecting an output signal from one of said plurality of optical sensors;

Appl. No. 10/080,202
Amendment and/or Response
Reply to Office action of 10 September 2004

Page 9 of 13

an analog-to-digital converter for digitally converting the selected optical sensor output signal;

a controller having an input coupled to receive the digitally converted sensor output signal, a first output coupled to said sensor output selector for selecting one of the sensor output signals, a second output coupled to the video signal processing circuit for causing the video signal processing circuit to process the test pattern from the pattern generator, a third output coupled to the pattern generator for selecting one of the test patterns, and fourth outputs coupled to the control input means of the video signal processing circuit for controlling the centering, height, width and linearity of the raster generated by said one color video signal projector, wherein said controller performs the following functions:

- sets the height and width controls for the raster to respective maximum values;
- displays a first test pattern consisting of a raster projection pattern;
- measures and stores the maximum output from said optical sensors;
- displays a second test pattern consisting of a center adjust pattern;
- adjusts the centering of the raster based on the outputs of the optical sensors located on the lateral sides of the display screen;
- displays the first test pattern;
- adjusts the width of the raster based on the outputs of the optical sensors located on the lateral sides of the display screen;
- adjusts the height of the raster based on the outputs of the optical sensors located above and below the display screen;
- adjusts the linearity of the raster based on the outputs of the optical sensors located above and below the display screen; and
- re-adjusts the height of the raster based on the outputs of the optical sensors located above and below the display screen.

Appl. No. 10/080,202
Amendment and/or Response
Reply to Office action of 10 September 2004

Page 10 of 13

15. (New) A projection television comprising:

- a display,
- one or more projectors,
- a deflection signal generator,
- at least two optical sensors that are mounted adjacent to opposing sides of the display, and
- a processor that is configured to:
 - receive signals corresponding to the output of each of the at least two optical sensors,
 - combine the signals to form an adjustment measure, and
 - provide the adjustment measure to the deflection signal generator;

wherein

the deflection signal generator is configured to modify a path of a projection from at least one of the one or more projectors to the display, based at least in part on the adjustment measure.

16. (New) The television of claim 15, wherein

- the at least two optical sensors include sensors adjacent top, bottom, right, and left sides of the display, and
- the adjustment measure facilitates a centering of a raster produced by at least one of the one or more projectors.

17. (New) The television of claim 15, wherein

- the at least two optical sensors include sensors adjacent top and bottom sides of the display, and
- the adjustment measure facilitates an adjustment of a height of a raster produced by at least one of the one or more projectors.

Appl. No. 10/080,202
Amendment and/or Response
Reply to Office action of 10 September 2004

Page 11 of 13

18. (New) The television of claim 15, wherein
the at least two optical sensors include sensors adjacent right and left sides of
the display, and
the adjustment measure facilitates an adjustment of a width of a raster
produced by at least one of the one or more projectors.

19. (New) The television of claim 15, wherein
the adjustment measure facilitates an adjustment of a linearity of a raster
produced by at least one of the one or more projectors.